



LB1833M

Low-Saturation Bidirectional Motor Driver for Low-Voltage Applications

Overview

The LB1833M is a low-saturation stepping motor driver IC for use in low-voltage applications. It is especially suited for use in portable equipment such as printer, FDD, camera.

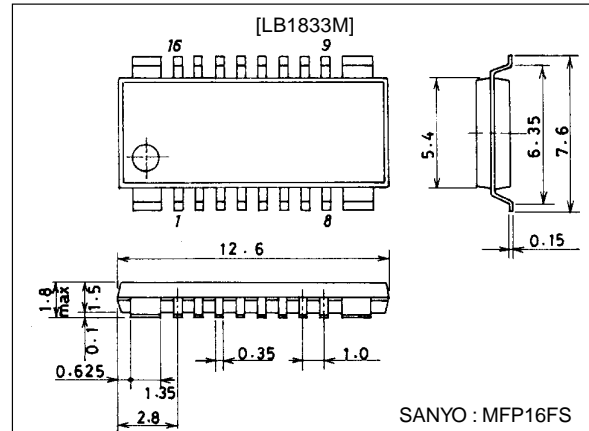
Features

- Capable of being operated from a low voltage (2.5V min).
- Low saturation voltage.
(Upper transistor+low transistor residual voltage 1.0V max at 400mA).
- Through current preventer on-chip.
- Logic power supply and motor power supply are separate.
- On-chip spark killer diodes.
- Possible to increase the internal allowable power dissipation because the package is compact (MFP-16FS) and heat can be radiated easily to the outside.

Package Dimensions

unit:mm

3097-MFP16FS



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max		-0.3 to +8.0	V
	V _S max		-0.3 to +8.0	V
Output supply voltage	V _{OUT}		-0.3 to V _S +V _{SF}	V
Input supply voltage	V _{IN}		-0.3 to +8.0	V
GND pin flow-out current	I _{GND}	per channel	1.0	A
Allowable power dissipation	Pd max1	IC only	900	mW
	Pd max2	Mounted on specified board (20×30×1.5mm ³ glass epoxy)	1200	mW
Operating temperature	T _{opr}		-20 to +75	°C
Storage temperature	T _{stg}		-40 to +125	°C

Allowable Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V _{CC}		2.5 to 7.0	V
	V _S		1.8 to 7.0	V
Input high-level voltage	V _{IH}		1.8 to 7.0	V
Input low-level voltage	V _{IL}		-0.3 to +0.7	V

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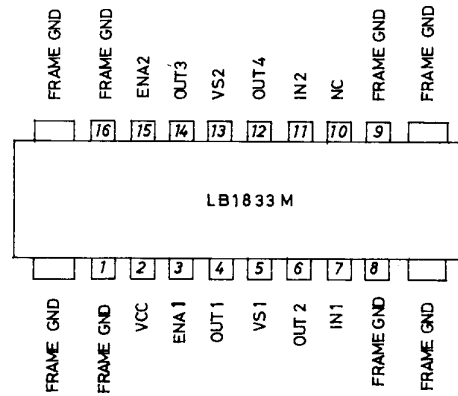
Electrical Characteristics at Ta = 25°C, VCC=3V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply current 1	I _{CCO}	ENA1, 2=0V, ENA4=0V, V _{IN1} =3V or 0V, I _S +I _{CC}		0.1	10	μA
Supply current 2	I _{CC}	ENA1=3V, V _{IN1} =3V or 0V, I _S +I _{CC}		10	18	mA
Output saturation voltage	V _{OUT1}	ENA=3V, V _{IN} =3V or 0V, I _{OUT} =200mA		0.35	0.50	V
	V _{OUT2}	ENA=3V, V _{IN} =3V or 0V, I _{OUT} =400mA		0.75	1.0	V
Input current 1	I _{IN}	V _{CC} =6V, V _{IN} =6V			250	μA
Input current 2	I _{ENA}	V _{CC} =6V, E _{NA} =6V			350	μA
Output sustain voltage	V _{O(sus)}	I _{OUT} =400mA	9			V
[Spark Killer Diode]						
Reverse current	I _{S(leak)}	V _{CC} ·V _S =7V			30	μA
Forward voltage	V _{SF}	I _{OUT} =500mA			1.7	V

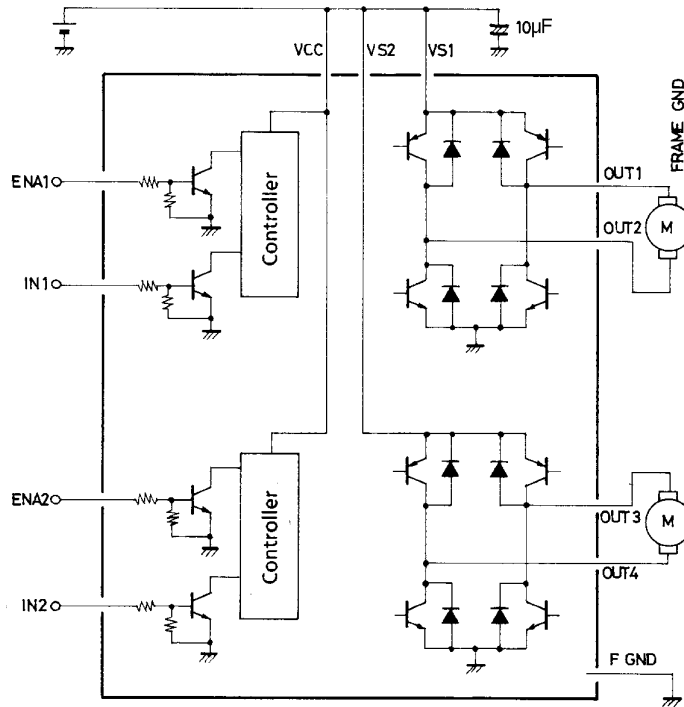
Truth Table

IN 1/2	ENA 1/2	OUT 1/3	OUT 2/4	Mode
L	H	H	L	Forward
H	H	L	H	Reverse
L	L	OFF	OFF	Standby
H	L	OFF	OFF	Standby

Pin Assignment

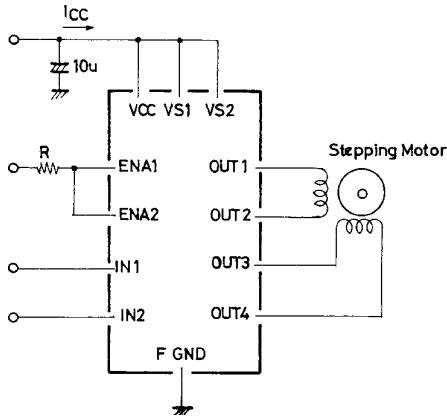


Equivalent Circuit Block Diagram

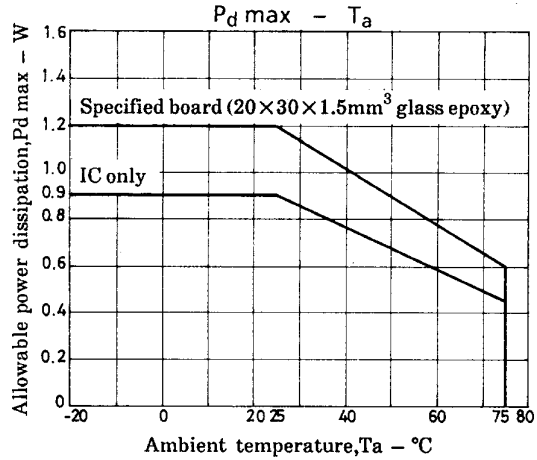


Top view

Sample Application Circuit



Note : Use one of the FRAME-GND pins for grounding. when the Cu-foiled side is soldered, heat radiation can be more improved.



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